

Title (en)
Method of production of a silicon carbide-oxide layered structure

Title (de)
Herstellungsverfahren einer Siliziumkarbidoxid-Schichtstruktur

Title (fr)
Procédé de fabrication d'une structure à couche en oxide de carbure de silicium

Publication
EP 1523032 A2 20050413 (EN)

Application
EP 04023713 A 20041005

Priority
JP 2003350244 A 20031009

Abstract (en)
A gate insulating film which is an oxide layer mainly made of SiO₂ is formed over a silicon carbide substrate by thermal oxidation, and then, a resultant structure is annealed in an inert gas atmosphere in a chamber. Thereafter, the silicon carbide-oxide layered structure is placed in a chamber which has a vacuum pump and exposed to a reduced pressure NO gas atmosphere at a high temperature higher than 1100°C and lower than 1250°C, whereby nitrogen is diffused in the gate insulating film. As a result, a gate insulating film which is a V-group element containing oxide layer, the lower part of which includes a high nitrogen concentration region, and the relative dielectric constant of which is 3.0 or higher, is obtained. The interface state density of an interface region between the V-group element containing oxide layer and the silicon carbide layer decreases.

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IPC 8 full level
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Cited by
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EP 04023713 A 20041005; CN 200410083545 A 20041009; US 95607804 A 20041004